



Insurance risk management: Overcoming barriers to AI adoption

Unlock the full potential of AI with modernization, transparency and the right talent



Executive summary

Artificial intelligence (AI) is fundamentally changing the insurance industry, offering powerful new ways to manage risk, enhance efficiency and improve decision-making. For actuaries and risk professionals, AI presents an opportunity to move from traditional, reactive models to more predictive and proactive strategies. Applications in claims processing, underwriting and fraud detection are already demonstrating value by automating routine tasks, improving accuracy and uncovering critical insights from vast datasets.

But the path to successful AI implementation has its obstacles. Many insurers are hindered by barriers such as outdated legacy systems, siloed data architectures, a persistent talent gap, and an evolving regulatory landscape. These challenges can slow momentum and prevent organizations from realizing the full potential of their AI investments.

This white paper explores these key barriers and provides actionable strategies to overcome them. We'll discuss the importance of modernizing technology stacks, building a robust data foundation, and fostering an AI-ready culture through upskilling and strategic partnerships. We'll also examine real-world case studies that show how insurers are successfully deploying AI to solve pressing business problems. By adopting a clear, phased approach, your organization can navigate these complexities and lead in an increasingly AI-driven future.



The current state of AI in insurance

The technology is moving from a theoretical concept to a practical tool, with applications that deliver tangible results.

AI can help insurers strengthen core operations, sharpen their competitive edge, and build more resilient and adaptive operating models.

Adoption trends show a clear focus on areas where AI can drive immediate impact, such as:

- **Claims processing:** AI has the potential to streamline claims intake, automate document review and accelerate adjudication. By handling repetitive, data-heavy tasks, it could free up claims adjusters to focus on complex cases that require human judgment, improving efficiency and customer satisfaction.
- **Underwriting:** Machine learning models are making underwriting more accurate by analyzing historical data to identify subtle risk patterns. This allows for more precise pricing, better risk selection and more dynamic portfolio management.
- **Fraud detection:** Well-designed AI-powered systems are highly effective at identifying anomalies and suspicious patterns in claims data. By analyzing transactions, documents and images in real time, these tools help insurers flag potential fraud with greater speed and accuracy than traditional methods.
- **Predictive analytics:** AI enhances financial modeling and risk assessment through advanced predictive analytics. Insurers can now develop more proactive loss prevention strategies and create dynamic risk profiles that adapt to new information, for more informed strategic decisions.

Barriers to AI adoption

While the potential of AI is clear, many insurers face hurdles that can impede progress. Some of the most common challenges are:

- **Legacy systems and siloed data:** Many insurers rely on legacy systems that are brittle, difficult to modify and incompatible with modern AI tools. Compounding this issue is the problem of siloed data. Critical information is often trapped in disparate systems and outdated formats, making it nearly impossible to create the unified datasets needed to train effective AI models. Without access to high-quality data, any AI initiative is destined to fall short.
- **Talent shortages:** The demand for professionals with AI and data science skills far outstrips the available supply. This talent gap makes it difficult to build in-house teams capable of developing, deploying and maintaining sophisticated AI systems. Many organizations struggle to attract and retain top talent, slowing down their innovation cycles.
- **Regulatory concerns:** The regulatory environment for AI is still taking shape. Many existing regulations were established long before the advent of advanced AI, creating uncertainty around compliance, data privacy and the ethical use of automated decision-making. Navigating this ambiguous landscape requires careful planning and a proactive approach to ensure that AI systems are fair, transparent and compliant.



Strategies for overcoming challenges

Navigating the barriers to AI adoption requires a clear and deliberate strategy. How can your organization move past these obstacles and build a foundation for success?

1. Modernize your technology and data platforms

The first step is to address your foundational infrastructure. This involves a commitment to modernizing your legacy technology stack, moving toward more flexible and scalable cloud-based platforms. Equally important is establishing a modern data architecture – breaking down data silos, creating centralized data lakes or warehouses, and ensuring your data is clean, accessible and ready for AI applications. A robust data foundation is a prerequisite for any meaningful AI work.

2. Invest in talent and cultivate an AI-first culture

To close the talent gap, you need a multi-pronged approach. Invest in upskilling programs to help your existing staff develop new skills in data analytics and machine learning. Simultaneously, work to recruit new talent with specialized AI expertise. You can also accelerate progress by forming strategic partnerships with technology vendors who have successfully deployed large-scale AI systems. This allows you to leverage external expertise while you build your internal capabilities.

3. Collaborate with regulators and prioritize transparency

Don't wait for regulations to be handed down. Work proactively with regulatory bodies to help shape the future of AI governance in insurance. By participating in industry conversations, you can help create a framework that encourages innovation while protecting consumers. Internally, prioritize transparency and explainability in your AI models. It's critical to understand and be able to explain how your AI systems arrive at their decisions to build trust with customers and regulators.

Case studies

Real-world examples highlight how insurers are successfully implementing AI to drive value.

- **Claims processing:** A leading property and casualty insurer deployed an AI-powered system to analyze images and documents submitted during claims intake. The system automatically verifies information, flags inconsistencies and triages claims, routing straightforward cases for automated approval and complex ones to human adjusters. This reduced processing times by over 50% and improved fraud detection accuracy, leading to cost savings.
- **Underwriting:** A commercial insurer developed a machine learning model to improve its risk assessment for small business policies. By analyzing thousands of data points, including non-traditional sources, the model generates an accurate risk score that helps underwriters price policies more precisely. This has enabled the insurer to expand into new market segments while maintaining a healthy loss ratio.
- **Fraud detection:** An auto insurer integrated an AI-based anomaly detection tool into its claims workflow. The tool analyzes claim narratives, repair estimates and communication logs for suspicious language or patterns linked to known fraud schemes. The system flags high-risk claims in real time for further investigation, increasing the fraud detection rate by 30% and reducing financial losses.



Conclusion and recommendations

For actuaries and risk professionals, AI offers a pathway to sharper precision, greater efficiency and more strategic decision-making. To embrace this transformation effectively, insurers must address the core barriers of legacy technology, talent gaps and regulatory uncertainty with a proactive and structured plan.

We recommend the following steps to begin your AI journey:

- **Start with a clear strategy:** Define specific business problems you want to solve with AI, such as improving underwriting efficiency or reducing claims fraud.
- **Build a solid data foundation:** Prioritize modernizing your data architecture to ensure you have access to high-quality, organized data.
- **Begin with pilot projects:** Start with proven, high-impact use cases to build momentum, demonstrate value and gain experience.
- **Foster an AI-ready culture:** Invest in training and upskilling your teams while promoting a mindset that consistently asks how AI can improve processes.

With these steps, your organization can overcome barriers and unlock the potential of AI to build a more intelligent, resilient and competitive insurance business.

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